LISTING OF THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

- 1. (Currently amended) A biomaterial for use in implantable orthopedic prosthetic devices which material: wherein said biomaterial comprises consolidated nanoparticles and
 - a. exhibits cytocompatibility with interfacing biological cells;
 - b. exhibits mechanical functionality with interfacing biological cells; and
- c. exhibits osteoblast adhesion between the implant and the interfacing biological cells; wherein the biomaterial
 - d. is a metal;
 - e. has a grain size less than about 500 nanometers; and
 - f. has a surface roughness less than about 500 nanometers root mean square (nm rms).
- 2. (Previously presented) A biomaterial as in claim 1 wherein the surface roughness is between 11 and 356 nanometers root mean square.
- 3. (Original) A biomaterial as in claim 2 which consists essentially of a titanium based metal.
- 4. (Previously presented) A biomaterial as in claim 3 wherein the titanium based metal has a particle size of less than about 500 nanometers and a surface roughness of about 11 nanometers root mean square.
- 5. (Original) A biomaterial as in claim 4 wherein said titanium based metal is commercially pure titanium.
- 6. (Previously presented) A biomaterial as in claim 1 wherein said metal is a titanium based alloy consisting essentially of, on a weight percent basis, of about 11 % titanium, 39% aluminum and 50% vanadium.

- 7. (Previously presented) A biomaterial as in claim 1 wherein the metal, on a weight percent basis, is a cobalt-chrome-molybdenum alloy consisting essentially of about 3% cobalt, 70% chromium and 27% molybdenum with the particle size less than about 200 nanometers and the surface roughness less than about 356 nanometers root mean square.
 - 8. (Original) A biomaterial as in claim 1 wherein said metal is a powder.
- 9. (Previously presented) A biomaterial as in claim 8 wherein said powder is consolidated and compressed so as to form a surface for interfacing with biological tissue.
- 10. (Original) A biomaterial as in claim 8 wherein said powder is compressed at room temperature.
- 11. (Currently amended) A method of forming an implantable orthopedic prosthetic device including the steps of:
 - (a) providing a metal biomaterial in powder form;
 - 1. which exhibits cytocompatibility within interfacing biological cells;
 - 2. exhibits mechanical functionality with interfacing biological cells; and
- 3. exhibits osteoblast adhesion between the implant and interfacing biological cells; wherein said biomaterial
 - 4. is a metal:
 - 5. has a grain size less than about 500 nanometers; and
- 6. has a surface roughness between about 360 and 11 nanometers root mean square; and
 - 7. is provided in powder form; and
- [[b.]] (b) compressing the powder in the absence of binders or sintering temperatures so as to form a consolidated composition comprising a surface for interfacing with biological cells, said consolidated composition having a grain size less than about 500 nanometers; and a surface roughness between about 11 and 360 nanometers root mean square

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- 12. (Currently amended) A biomaterial for use in implantable orthopedic prosthetic devices which material: wherein said biomaterial comprises consolidated nanoparticles and
 - a. exhibits cytocompatibility with interfacing biological cells;
 - b. exhibits mechanical functionality with interfacing biological cells; and
- c. exhibits osteoblast adhesion between the implant and the interfacing biological cells; wherein the biomaterial
 - d. is a metal; and
- e. has a particle size less than between 200 and 500 nanometers and a surface roughness between 11 and 360 nanometers root mean square.
- 13. (Currently amended) A biomaterial for use in implantable orthopedic prosthetic devices which material wherein said biomaterial:
 - a. exhibits cytocompatibility with interfacing biological cells;
 - b. exhibits mechanical functionality with interfacing biological cells; and
- c. exhibits osteoblast adhesion between the implant and the interfacing biological cells; wherein the biomaterial
 - d. is a metal;
 - e. has a particle size less than 500 nanometers, and
- f. has a surface roughness less than 500 nanometers root mean square (nm rms).
- 14. (Previously presented) A biomaterial as in claim 13 wherein the surface roughness is between 11 and 356 nanometers root mean square.
- 15. (Previously presented) A biomaterial as in claim 14 which consists essentially of a titanium based metal.
- 16. (Previously presented) A biomaterial as in claim 13 wherein the metal on a weight percent basis, is a cobalt-chrome-molybdenum alloy consisting essentially of about 3% cobalt, 70% chromium and 27% molybdenum with the surface roughness less than about 356 nanometers root mean square.